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BOTANY.—*The Costa Rican Species of Ilex*.¹ PAUL C. STANDLEY,
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No representative of the genus *Ilex* (holly) had been reported from Central America until 1925, when I published in this JOURNAL² descriptions of three new species which I had collected in Costa Rica in 1924. During the Costa Rican trip of that year the genus was not noticed until nearly the end of the season, consequently few specimens were collected. It seemed remarkable, however, that a genus represented by three species should not have been detected by some of the numerous botanists who had visited that country.

During the winter of 1925-26 I spent several months more in Costa Rica, and it now seems even more remarkable that the genus was not observed there earlier. Special attention was given this season to study of the genus, with the result that shrubs and trees of *Ilex* were found to be plentiful nearly everywhere in the mountains of central Costa Rica, and in some localities probably 30 per cent of the shrubbery consisted of plants of this genus. Individuals with flowers or fruit are comparatively scarce, and it may be on this account that the group has been overlooked by most collectors.

More than 30 numbers of *Ilex* were collected in Costa Rica this season. Study of them indicates that they represent six species, three of which are described here as new. The following key indicates the relationships of the Costa Rican species, which are the only members of their family known from Central America. It is probable that the genus may be found also in the mountains of western Panama.

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² 15: 476-477. 1925.

KEY TO SPECIES

Leaves rounded or very obtuse at apex, crenate.

Leaves coarsely and conspicuously punctate beneath, not emarginate.

1. *I. vulcanicola*.

Leaves not punctate beneath, usually emarginate at apex. . . . 2. *I. tristis*.

Leaves acute or acuminate, entire, crenate-serrate, or appressed-serrate.

Branchlets densely and finely pubescent. Leaves appressed-serrate.

3. *I. pallida*.

Branchlets glabrous.

Leaves entire. 4. *I. valerii*.

Leaves crenate-serrate.

Leaf blades elliptic, coarsely crenate-serrate; calyx lobes in fruit acutish. 5. *I. lamprophylla*.

Leaf blades oblong to oblong-elliptic, remotely crenate-serrate with appressed teeth; calyx lobes in fruit broadly rounded.

6. *I. carpintera*.

1. *ILEX VULCANICOLA* Standl. Journ. Washington Acad. Sci. **15**: 477. 1925.

The type was collected at Las Nubes. The following additional collections, at altitudes of 2,000 to 2,400 meters, may be reported: Cerro de las Caricias, Province of Heredia, *Standley & Valerio* 52021, 52197, 52256, 52291. The type collection was described as an epiphytic shrub, and it is not improbable that this species may be at times an epiphyte. Usually it is a shrub of 1.5 to 3 meters, growing in wet forest. The leaves are pale green and 1.5 to 5 cm. long. On young plants they are often obovate-oblong, and much narrower than on mature plants.

2. *Ilex tristis* Standl., sp. nov.

Shrub or tree, 3-12 meters high, the young twigs stout and densely leafy, often sparsely hirtellous; petioles stout, 3-4 mm. long, glabrous; leaf blades broadly elliptic or obovate-elliptic, 2.5-4 cm. long, 2-3 cm. wide, broadly rounded and emarginate at apex, rounded or very obtuse at base, coriaceous, coarsely crenate with about 7 crenations on each side, dark green above, paler beneath, glabrous, the costa and lateral nerves prominent beneath; flowers and fruit unknown.

Type in the U. S. National Herbarium, no. 1,251,406, collected in wet forest on Cerro de las Vueltas, Provincia de San José, Costa Rica, altitude 3,000 meters, Dec. 29, 1925, by Paul C. Standley and Juvenal Valerio (no. 43670).

No. 43578, from the same locality, also belongs to this species. It is probable that the following additional collections are referable here: Laguna de la Chonta, Provincia de San José, alt. 2,100 meters, *Standley* 42169. Near Finca La Cima, north of El Copey, Provincia de San José, alt. 2,400 meters, *Standley* 42608. Both these collections were taken from immature shrubs, with foliage more luxuriant than on mature trees, some of the leaves being as much as 8 cm. long.

Ilex tristis is a common tree in the dense, cold, wet forest bordering the paramos about the summit of Cerro de las Vueltas.

3. *Ilex pallida* Standl., sp. nov.

Shrub 1.5-3 meters high, the branchlets grayish, densely puberulent or short-pubescent, densely leafy; petioles stout, 5-7 mm. long, sparsely puber-

ulent; leaf blades oblong-elliptic or elliptic, 4–9 cm. long, 1.7–4 cm. wide, acuminate, often abruptly so, at base obtuse, coriaceous, dark green (pale green and not blackening when dried), remotely appressed-serrate or subentire (teeth about 9 on each side; sometimes as many as 18), glabrous in age but when very young sparsely pubescent above along the costa; staminate flowers 4-parted, borne in 2 or 3-flowered, solitary or geminate, axillary umbels; peduncles 5–7 mm. long, glabrous, the pedicels about 3 mm. long; calyx 1.5 mm. broad, the lobes broadly rounded; petals white.

Type in the U. S. National Herbarium, no. 1,251,651, collected on Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, Costa Rica, altitude about 2,300 meters, March 3, 1926, by Paul C. Standley and Juvenal Valerio (no. 50608).

The following sterile specimens also belong to this species: Near Finca La Cima, north of El Copey, Provincia de San José, alt. 2,400 meters, *Standley* 42729. Cerro de las Vueltas, Provincia de San José, alt. 3,000 meters, *Standley & Valerio* 43753.

In general appearance *I. pallida* is much like *I. lamprophylla*, but the leaves do not blacken in drying as in that species, the leaves of which are coarsely crenate-serrate. The densely pubescent branches of *I. pallida* distinguish it from all other Costa Rican species.

4. *Ilex valerii* Standl., sp. nov.

Tree 4.5 meters high, glabrous throughout; branchlets densely leafy; petioles stout or slender, 1–2.5 cm. long, reddish; leaf blades elliptic-oblong to broadly lance-oblong or elliptic, 5–8.5 cm. long, 3–4 cm. wide, rather abruptly acute or acuminate, at base broadly rounded and often short-decurrent, coriaceous, entire, blackening when dried, not punctate beneath; inflorescences solitary, umbelliform, 3 to 6-flowered, the peduncles 1.8–2.5 cm. long, the pedicels 2–3 mm. long; calyx green, 3 mm. broad, the 4 lobes ovate-deltoid, acutish; petals 4, white, 3.5 mm. long.

Type in the U. S. National Herbarium, no. 1,251,513, collected on the Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, Costa Rica, altitude about 2,300 meters, March 3, 1926, by Paul C. Standley and Juvenal Valerio (no. 50582).

Ilex valerii is named for Prof. Juvenal Valerio, in whose company it was collected. Prof. Valerio, an enthusiastic student of the Costa Rican flora, accompanied me nearly all the time that I spent in Costa Rica this year. To him I am deeply indebted for unstinted assistance, and for many attentions which contributed largely to the success of this season's work.

This species is very distinct from all others known from Costa Rica in its long-petioled entire leaves and long-pedunculate inflorescences.

5. *ILEX LAMPROPHYLLA* Standl. Journ. Washington Acad. Sci. **15**: 476. 1925.

The type was collected at La Estrella, Province of Cartago. The following additional collections, at altitudes of 1,400 to 2,400 meters, may be reported: Cerro de las Caricias, Provincia de Heredia, *Standley & Valerio* 52012, 52200, 52273, 52260. Cerro de las Lajas, Provincia de Heredia, *Standley & Valerio* 51539. Yerba Buena, Provincia de Heredia, *Standley & Valerio* 49860, 49816, 49709. Fraijanes, Provincia de Alajuela, *Standley & Torres* 47443,

47423. El Muñeco, Provincia de Cartago, *Standley & Torres* 51332, 51275, 51177.

This is the most common Costa Rican species of *Ilex*, a shrub or tree of 2.5 to 9 meters, with smooth bark, dark green leaves, and greenish white flowers. It grows always in wet forest.

6. *ILEX CARPINTERAE* Standl. Journ. Washington Acad. Sci. **15**: 477. 1925.

The type was collected on Cerro de la Carpintera, Province of Cartago. The following new collections, at 1,400 to 2,400 meters, may be reported: Cerros de Zurquí, Provincia de Heredia, *Standley & Valerio* 50597. El Muñeco, Provincia de Cartago, *Standley & Torres* 50881, 50918, 50926.

This species is very close to *I. lamprophylla*, and doubtfully distinct. More material will be necessary in order to determine its status. It is a shrub or tree of 2 to 6 meters, with dark green, usually lustrous leaves.

BOTANY.—*Notes on the Genus Sanchezia*.¹ E. C. LEONARD, U. S. National Museum. (Communicated by E. P. KILLIP.)

Sanchezia, a genus of the family *Acanthaceae*, tribe *Ruellieae*, was briefly described² by Ruiz and Pavón in 1794, and four years later was formally published by these authors,³ two species, *S. ovata*, the type, and *S. oblonga* being described. From that time on, no further study of this interesting genus seems to have been made until 1847, when it was redescribed by Nees in Martius' *Flora Brasiliensis*⁴ under the name *Ancylogyne*. Nees proposed two species, *A. munita* and *A. macrocnemis*; the latter proves to be identical with *S. oblonga* Ruiz & Pavón. In his treatise upon the family *Acanthaceae* in DeCandolle's *Prodromus*,⁵ published the same year, Nees adds *A. peruviana* and *A. capitata*. Hooker in 1866 re-established⁶ the old generic name, *Sanchezia*, and added the species *S. nobilis*. The only recent attempt to bring together all the members of this genus is that by Lindau,⁷ who published a key which included ten species.

The genus was named for José Sánchez, a professor of botany at Cádiz. It consists of shrubby or herbaceous plants with large firm leaves, and attractive, bright yellow or purple, sessile flowers in spikes or racemes. The most reliable characters by which the genus may be

¹ Published by permission of the Secretary of the Smithsonian Institution. Received September 23, 1926.

² Fl. Peruv. Chil. Prodr. 5. pl. 32. 1794.

³ Fl. Peruv. Chil. 1: 7. pl. 8, f. c, b. 1798.

⁴ Mart. Fl. Bras. 97: 63. 1847.

⁵ DC. Prodr. 11: 221. 1847.

⁶ In Curtis' Bot. Mag. 92: pl. 5594. 1866.

⁷ Bull. Herb. Boiss. II. 4: 315. 1904.